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Serial Number: 09/145,595

Dkt: 303.537US1

Filing Date: September 2, 1998

Title: STRUCTURE AND METHOD FOR REDUCED EMITTER TIP TO GATE SPACING IN FIELD EMISSION DEVICES

In the present case, Applicant's independent claims 36 and 43, as amended, claim a product by process wherein the product is not the same as or obvious from a product of the prior art. Specifically, Cloud describes an insulating layer 18, as shown in Figure 3 of the reference, which is preferably a conformal insulating layer. The oxide is deposited on the emitter tip 13 in a manner such that the oxide layer conforms to the shape of the cathode emitter tip 13. Cloud next describes the deposition of the conductive gate material 15. (Col. 5, ln. 61-66). Thus, by definition of a "conformal" process, the product describe in Cloud yields a product which has a gate to emitter tip separation distance which is equal to a distance separating the gate from the substrate.

By contrast, Applicant's independent claims 36 and 43, as amended claim forming a number of cathode emitter tips in cathode regions of the substrate. The number of cathode emitter tips are formed according to a novel process. This process includes forming a gate insulator layer on the emitter tips and the substrate. Forming the gate insulator layer includes ion etching the insulator layer such that the insulator layer is formed thinner around the emitter tips than in an isolation region of the substrate. A number of gate lines on the gate insulator layer. As claimed by the Applicant's invention, the product produced by this novel process includes a structure wherein a distance separating the number of cathode emitter tips from the number of gates lines is significantly thinner than a separation distance separating the number of gate lines and the substrate. Thus, the method limitations contained in Applicant's independent claims 36 and 43 are germane to the issue of patentability of the device itself since the product, or device, in the product-by-process claim is not the same as or obvious from a product of the prior art.

Further, as stated in the Applicant's specification earlier processes, such as described in U.S. Patent numbers 3,665,241; 3,755,704; and 3,812,559 do not address the problem of gate to emitter tip distance. Hence, the Applicant's independent claims 36 and 43, as amended, do describe a novel product produced through a novel process. (Specification pg. 2, ln. 6-14). For these reasons, Applicant respectfully requests reconsideration and withdrawal of the rejection for independent claims 36 and 43, as well as those claims which depend therefrom.

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CONCLUSION

Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney (612) 373-6913 to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

JI UNG LEE

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8/29/2000

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I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to Assistant Commissioner of Patents, Washington, D.C. 20231 on **June 28, 2000**.

Name

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